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**Attention: EXAMINER RUDY ZERVIGNON**  
**Phone: (571) 272-1442**

TC 1700 PERSONNEL: THE DOCUMENT TO FOLLOW IS A

## RESPONSE AFTER FINAL

including:

- ☐ Response under 37 CFR §1.116
- ☐ Notice of Appeal
- ☐ Appeal Brief under 37 CFR §1.192 (filed in triplicate)
- ☒ Reply Brief under 37 CFR §1.193(b)(1) (filed in triplicate)
- ☐ Request for Continued Examination (RCE) Transmittal
- ☐ Other: \_\_\_\_\_

for filing in U.S. Patent Application Serial No. 09/624,810

## SPECIAL STATUS

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\_\_\_\_\_  
Gary M. Hartman

November 29, 2004  
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Date

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No. :	09/624,810	Confirmation No. <b>6522</b>
Applicant :	Robert W. Bruce et al.	
Filed: :	July 24, 2000	
TC/Art Unit: :	1763	
Examiner :	Rudy Zervigon	
Docket No. :	13DV-13228	
Customer No. :	30952	

**REPLY BRIEF UNDER 37 CFR §1.193(b)(1)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria VA 22313-1450

This is a Reply Brief to the Examiner's Answer dated November 1, 2004,  
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At the bottom of Page 4, the Examiner's Answer acknowledges that Dietrich does not disclose a limitation in independent claim 1 (and independent claim 6), in that Dietrich's electron beams 17 and 18 do not have a higher intensity at the interface of the surface 9 of the molten bath 8 with the crucible 6 than at a central region of the bath surface 9. Consequently, in order to meet this limitation, the Examiner states at the top of Page 5 that "Dietrich's intensity profile (38) would have to be skewed over the entire diameter of the molten bath 8, and thus represent broader electron beams." The Answer then argues that "[t]he Examiner has repeatedly given evidence, found in Dietrich's disclosure, that Dietrich's electron beam control elements are capable of the intended use of Dietrich's apparatus" (top of Page 5 of the Answer), which the Examiner states is "a constant evaporation rate" obtained by "a constant temperature of the coating material (molten bath)" (middle of Page 8 of the Answer).

The Examiner's arguments for the above-stated "capability" of Dietrich's apparatus appear to be entirely focused on the ability of the comparator 60 to steer the radial deflection of the electron beam guns 10 and 11 with the deflecting systems 12 and 13. Pages 6-8 of the Answer. However, nowhere does Dietrich disclose (nor does the

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Examiner cite) any basis for concluding that either the comparator 60 or the steering systems 12 and 13 are configured - programmed, mechanically constructed, etc. - to steer the radial deflection of the electron beam guns 10 and 11 to the extent necessary to project the beams 17 and 18 onto the interface between the molten bath 8 and the crucible 6. Therefore, drawing the conclusion that Dietrich's comparator 60 or steering systems 12 and 13 are configured to be physically capable of doing so is, at best, purely speculative, and at worst contrary to Dietrich's teachings that

In electron beam melting units, it is important that the electron beam does not strike beside the material to be melted.

Dietrich at column 1, lines 23-25.

While the Examiner cites *In re Best*, 195 USPQ 430, 433 (CCPA 1977), for the rule that "[w]hen the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent" (Page 6 of the Answer), such a presumption cannot be made if the properties and functions are contrary to the express teachings of the reference, as is the situation here.

At the bottom of page 7 of the Answer, the Examiner acknowledges that Dietrich requires the beams 17 and 18 to strike the electrode 4, but then at the top of

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page 8 argues that it is “completely plausible that . . . Dietrich’s apparatus would be capable of skewing its intensity profile to encompass a larger area such that ‘higher intensity at an interface of the surface (9) of the coating material (molten bath 8) with the crucible (6) than at a central region of the surface of the coating material (molten bath 8),’” because doing so “is consistent with Dietrich’s goal and operation, i.e., “a constant evaporation rate” obtained by “a constant temperature of the coating material (molten bath 8).” However, such a capability would appear to require a modification to Dietrich’s apparatus that is not disclosed by Dietrich - means for spreading the beams 17 and 18 so that they are projected onto a larger surface area of the molten bath 8 than is shown in Figure 3.

The above remarks address arguments made in the Response section of the Examiner’s Answer that appear to be limited to the rejections of claims 1, 2, and 3. At the bottom of Page 8 of the Answer, the Examiner focuses on the following limitation found in claim 4 (which depends from claim 1):

the beam pattern has a perimeter on the surface portion of the crucible, the electron beam being incident on the surface of the coating material at an oblique angle so as to establish relative to the electron beam gun a proximal point and an oppositely-disposed distal point at the perimeter of the beam pattern, the beam pattern having a lower intensity at the proximal and distal points than

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elsewhere at the perimeter of the beam pattern.

The Examiner concludes that Dietrich discloses this limitation because Dietrich's "beam pattern [has] a lower intensity at the proximal and distal points (before maxima at 39/40) than elsewhere at the perimeter of the beam pattern." Top of Page 9 of the Answer. However, nothing in Dietrich discloses or suggests the intensities of Dietrich's beam patterns 26 and 27 at the proximal and distal points (generally, 41 and 42) are lower than elsewhere at the perimeter of the beam patterns 26 and 27. Instead, it would appear that the intensities of the beams 17 and 18 at their perimeters are constant (except for the discontinuities between points 30-31 and 32-33, in which case the intensities at the proximal and distal points 41 and 42 are clearly higher).

The remaining arguments made in the Answer are limited to the 35 USC §103 rejection of claims 5 and 8. Therefore, the Answer appears to omit any arguments directed toward the 35 USC §102 rejection of dependent claims 9 and 10.

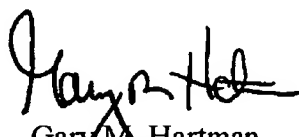
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**Closing**

Appellants again respectfully request that this Honorable Board reverse the  
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Respectfully submitted,

By

  
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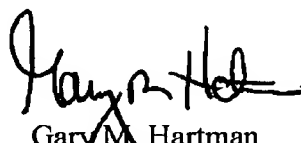
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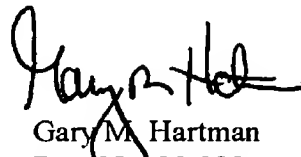
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